



PTO/SB/21 (08-00)

TRANSMITTAL FORM

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	1 10/08/21 (00 00)
Application Number	08/788,560
Filing Date	January 24, 1997
First Named Inventor	Shunpei YAMAZAKI et al.
Group Art Unit	2811
Examiner Name	O. Nadav
Attorney Docket Number	0756-1626

ENCLOSURES (check all that apply)								
Fee Transmittal Form Fee Attached Amendment / Reply After Final Affidavits/declaration(s) Extension of Time Request Express Abandonment Rec Information Disclosure Stat Certified Copy of Priority Document(s) Response to Missing Parts Incomplete Application Response to Missing P under 37 CFR 1.52 or	Allowance Communication to Bueals and Interference of Communication to Communication to Communication to Communication to Communication to Communication states and Interference or Interferen	Board es Group y Brief) additional						
	SIGNA	 TURE OF APPLICANT, ATTORNEY, C	R AGENT					
Firm Cor PMB 955 Individual name Eric J. Robinson, Reg. No. 38,285 Robinson Intellectual Property Law Office, P.C. PMB 955 21010 Southbank Street Potomac Falls, VA 20165								
Signature								
Date May 27, 2003								
CERTIFICATE OF MAILING								
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Signature Date May 27, 2003

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PTO/SB/17 (11-00) Approved for use through 10/31/2002. OMB 0651-0032

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		Filing Date	January 24, 1997					
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	· -	Examiner Name	O. Nadav					
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TOTAL AMOUNT OF PAYMENT	(\$) 410.00	Attorney Docket No.	0756-1626					

METHOD OF PAYMENT			FEE CALCULATION (continued)								
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FROLLINSO 6-1626 6.3.07 Attorney Docket No. 0756

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:)	Group Art Unit: 2811	
Shunpei YAMAZAKI et al.)	Examiner: Ori Nadav	
Serial No. 08/788,560)	CERTIFICATE OF MAILING I hereby certify that this correspondence is being	
Filed: January 24, 1997)	deposited with the United States Postal Service wit sufficient postage as First Class Mail in an envelop	
For: SEMICONDUCTOR DEVICE AND)	addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 27,	
METHOD OF FORMING THE SAME)	2003. Aelili M Stampei	
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Honorable Commissioner of Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

RESPONSE

Table Commissioner of Patents

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Indria, VA 22313-1450

Sir:

The non-final Official Action dated December 27, 2002 has been received and its extra corofully potential. Filed and its extra corofully potential. contents carefully noted. Filed concurrently herewith is a Request for a Two Month Extension of Time which extends the shortened statutory period for response to May 27, 2003. Accordingly, the Applicants respectfully submit that this response is being timely filed.

Claims 78-157 are pending in the present application, of which claims 78, 84, 90, 96, 102, 104, 110, 118, 126, 134, 140, 146 and 152 are independent. For the reasons set forth in detail below, these claims are believed to be in condition for allowance.

The Applicants note with appreciation the consideration of the Information Disclosure Statements filed on January 24, 1997, December 8, 1997, December 9, 1998, December 31, 1998, and June 16, 2000.

Paragraph 2 of the Official Action rejects claims 78-101, 110-115, 117-127, 129-138 and 146-157 as obvious based on the combination of U.S. Patent No. 4,755,865 to Wilson et al., U.S. Patent No. 4,772,927 to Saito et al. and U.S. Patent No. 4,841,348 to Shizukuishi et al. Paragraph 3 of the Official Action rejects claim 116 as being obvious

based on the combination of Wilson, Saito, Shizukuishi and U.S. Patent No. 5,219,784 to Solheim. Paragraph 4 of the Official Action rejects claims 128 and 139 as being obvious based on the combination of Wilson, Saito and U.S. Patent No. 4,694,317 to Higashi et al. Paragraph 5 of the Official Action rejects claims 102-107, 109 and 140-144 as being obvious based on the combination of Wilson, Saito, Shizukuishi and U.S. Patent No. 4,766,471 to Ovshinsky et al. Paragraph 6 of the Official Action rejects claim 145 as being obvious based on the combination of Wilson, Saito, Shizukuishi, Ovshinsky and Higashi. Finally, paragraph 7 of the Official Action rejects claim 108 as being obvious based on the combination of Wilson, Saito, Shizukuishi, Ovshinsky and Solheim. The Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2143-2143.01, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. The independent claims of the present invention -3-

specifically recite that a boundary of a CNO region is not aligned with an edge of a gate electrode. Wilson, Saito, Shizukuishi, Solheim, Higashi and Ovshinsky, either alone or in combination, do not teach or suggest that one boundary of a region, as claimed, located within a channel region and not aligned with edges of a gate electrode. In forming a rejection of the claims, the Official Action asserts that Wilson inherently teaches one boundary of a region located within a channel region and not aligned with edges of a gate electrode (pp. 3-4 and 12-14, Paper No. 53).

It appears that Fig. 3 of Wilson shows a region 42C having a boundary with a region 42B where the boundary is aligned with edges of a gate 44. In fact, the Official Action concedes that "figure 3 depicts a [boundary] aligned with edges of the gate electrode" (p. 14, Id.). The Official Action asserts that Wilson inherently teaches migration of oxygen or nitrogen such that the boundary would be located within the channel region. The Applicants respectfully traverse the finding of inherency regarding migration, because the Official Action has not provided a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the Wilson reference. Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). In accordance with MPEP § 2144.03, the Applicants respectfully traverse the above-referenced assertions and request that the Examiner cite references in support of their position. The Applicants respectfully submit that one boundary of a region, as claimed, located within a channel region and not aligned with edges of a gate electrode in combination with the other features of the independent claims is not conventional and would not have been known to one with ordinary skill in the art at the time of the invention.

In fact, the disclosure in Wilson <u>teaches away</u> from the assertion made in the Official Action in that it shows alignment of the boundary with the edges of the gate dielectric. Wilson explicitly states that the "implanted oxygen or nitrogen apparently precipitates at the grain boundaries and does not migrate significantly with the temperatures and times used to active the dopant" (col. 4, lines 56-59). The Official Action appears to interpret this statement to mean that some migration of oxygen and

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nitrogen occurs. Applicant respectfully disagrees and respectfully submits that the plain language of this statement in fact means the opposite, specifically that oxygen and nitrogen do not migrate. Wilson states that the oxygen and nitrogen precipitate at the grain boundaries and <u>do not migrate significantly</u>. Thus, any theorized migration of oxygen and nitrogen is, at best, insignificant. Clearly, Wilson teaches away from any holding that regions 42C would <u>inherently</u> not be aligned with edges of the gate electrode as clearly illustrated in Figure 3 of Wilson.

Saito, Shizukuishi, Solheim, Higashi and Ovshinsky do not cure the deficiencies in Wilson. These references are relied upon to teach features unrelated to the deficiencies in Wilson.

Since Wilson, Saito, Shizukuishi, Solheim, Higashi and Ovshinsky do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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